



**IAEA**

International Atomic Energy Agency

*Atoms for Peace*



# EMERGENCY PREPAREDNESS AND RESPONSE

Prepared to Respond

MESSAGE FROM  
THE DIRECTOR GENERAL



*“Effective national and global response capabilities are essential to minimize the impacts from nuclear and radiological incidents and emergencies and to build public trust in the safety and security of nuclear technology. The Agency’s Incident and Emergency Centre (IEC) is the global focal point for international preparedness and response to nuclear and radiological safety or security related incidents.”*

Yukiya Amano

## MESSAGE FROM THE DEPUTY DIRECTOR GENERAL

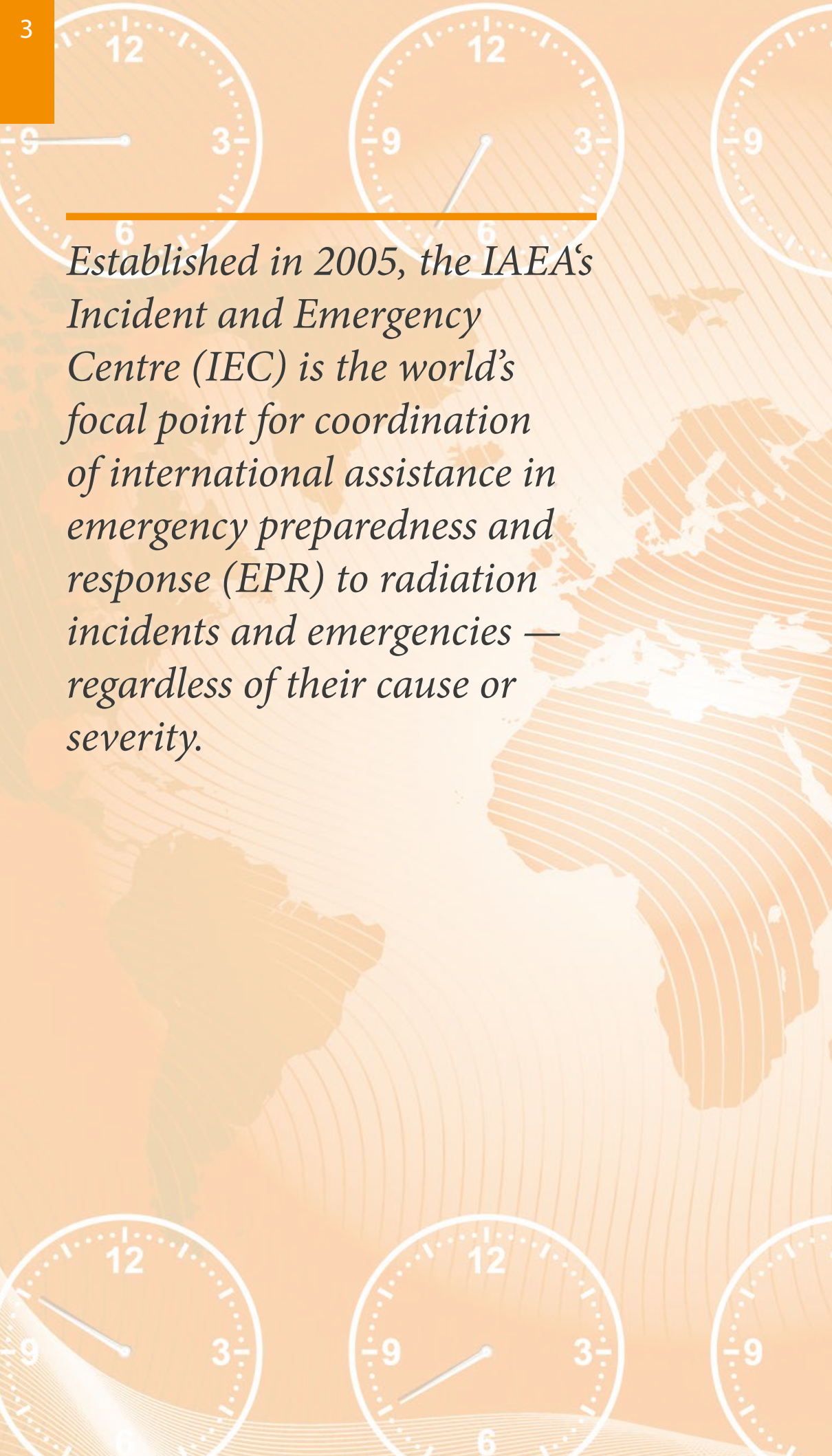


*“From experience, we all know that emergencies do not respect borders. Hence international efforts in building efficient emergency preparedness and response are needed.”*

*“Today, the IEC provides around-the-clock assistance to Member States in dealing with nuclear and radiological incidents and emergencies.”*

*“The IEC’s main functions at the preparedness stage include developing and refining standards, guidelines and practical tools, providing services and building human capacities.”*

Juan Carlos Lentijo




*Established in 2005, the IAEA's Incident and Emergency Centre (IEC) is the world's focal point for coordination of international assistance in emergency preparedness and response (EPR) to radiation incidents and emergencies — regardless of their cause or severity.*

## How does the IAEA assist Member States in EPR?

The IAEA's vision is that all Member States build comprehensive and internationally harmonized capabilities to respond efficiently and timely to any nuclear or radiological emergency, consistent with IAEA Safety Standards.

Through the Incident and Emergency Centre (IEC), the IAEA fulfils its EPR roles and responsibilities by:

- ① Developing EPR-related safety standards, guides and tools to support Member States and international organizations;
- ① Offering appraisal services and assisting Member States in strengthening their EPR capabilities and arrangements;
- ① Developing, implementing and sustaining a comprehensive EPR capacity building programme for both the Secretariat and the Member States;
- ① Developing and maintaining the Inter-agency EPR framework;
- ① Providing a focal point for emergency response and emergency assistance.



**Irrespective of the cause, the IAEA prepares for and responds to nuclear or radiological emergencies, which occur in relation to a facility or an activity.**

## How does the IAEA coordinate EPR internationally?

Effective international response to a radiation emergency requires taking numerous aspects and scientific disciplines into account. This is why the IAEA, together with the respective international partner organizations, established the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE). It facilitates the coordinated inter-agency cooperation in case of an emergency.

The IACRNE was established in September 1986 in the aftermath of the Chernobyl accident. Since its foundation, IACRNE has grown from seven to 18 international organizations.

Members of IACRNE develop, maintain and co-sponsor the *Joint Radiation Emergency Management Plan of the International Organizations* — the Joint Plan. IACRNE defines the cooperation mechanisms among the relevant international, intergovernmental organizations to ensure a coordinated and consistent response of all involved organisations to a radiation emergency. The IAEA is the Secretariate for the Joint Plan.

## How does the international EPR framework operate?

The International EPR Framework facilitates the exchange of information and, upon request, the prompt provision of assistance in the event of a radiation emergency to mitigate any consequences. This framework is based on three elements:


**Legal instruments:** the legal foundations provided by the Convention on Early Notification of a Nuclear Accident (Early Notification Convention) and the Convention on Assistance in the Case of a Nuclear Accident (Assistance Convention).

**IAEA Safety Standards:** the IAEA establishes and provides for the application of internationally agreed safety standards.

**Agreements and arrangements:** practical means by which the IAEA, its Member States and the relevant international organizations maintain preparedness to respond to any radiation emergency.



## FRAMEWORK FOR INTERNATIONAL COOPERATION



A well-established global communication network is key to ensure an effective international emergency response. The IEC lists some 270 national contact points within the various Competent Authorities of the Member States. They have the authority and responsibility to report a radiation emergency to the IAEA or to receive notifications regarding such emergencies that could affect its countries.

## How does the IAEA prepare Member States to respond?

The IAEA prepares and conducts regular communications drills and Conventions Exercises (ConvEx) hosted by Member States. In addition to numerous drills and internal emergency response exercises, six ConvEx exercises are run each year on three levels. Large-scale ConvEx-3 are conducted every 3 to 5 years.

Exercises aim at evaluating and improving response arrangements and capabilities of the IAEA and its Member States in responding to nuclear or radiological emergencies; three to four internal response exercises are also conducted every year at the IEC facilities.

Member States and international organizations can further strengthen their EPR programmes by conducting national trainings and drills and participating in ConvEx exercises.

## How does the IAEA help Member States build capacity in EPR?

Helping Member States enhance their own preparedness for emergencies is an essential IAEA mission. Supporting Member States to strengthen and maintain their on-site, local, regional and national response capabilities in line with IAEA Safety Standards is part of this mandate and is facilitated through:

- ① Peer reviews, such as Emergency Preparedness Review (EPREV)
- ① Technical support to national cooperation projects
- ① Technical support to regional cooperation projects in Africa, Asia and the Pacific, Europe and Latin America.





## What EPR services does the IAEA provide to Member States?

The Emergency Preparedness Review (EPREV) is an IAEA service to assess the level of preparedness for a nuclear or radiological emergency in Member States. EPREV's facilitate the development of national emergency response capabilities, consistent with the IAEA Safety Standards. An EPREV can be requested by any Member State.

### How do they work?

A team of IAEA Secretariat and international experts assess national capabilities, inter alia, by comparing their arrangements with current international IAEA safety standards and worldwide good practices.

Since 1999, some 40 EPREV missions have been conducted worldwide.



## **What EPR response and event reporting systems are available?**

### **THE INCIDENT AND EMERGENCY SYSTEM (IES)**

The IES facilitates world wide coordination and response to nuclear and radiological incidents and emergencies 24 hours a day, seven days a week. The IAEA's emergency response roles through IES encompass:

- ① Notification and official information exchange
- ① Assessment of potential emergency consequences and prognosis of potential emergency progression
- ① Provision of public information
- ① Provision of assistance on request
- ① Coordination of inter-agency response

To ensure that these tasks can be managed, the IEC has trained some 150 IAEA Secretariat staff to support the IES in case of an activation of the Centre.

### **RESPONSE AND ASSISTANCE NETWORK (RANET)**

The IAEA's Response and Assistance Network (RANET) provides a compatible and integrated system to provide international assistance and minimize actual or potential radiological consequences of a radiation incident or emergency for health, environment and property. RANET facilitates the provision of advice and assistance to the requesting State on on-scene response activities to mitigate the impact of emergencies.

State Parties to the Assistance Convention are expected, within the limits of their capabilities and resources, to identify national assistance capabilities (NACs) consisting of qualified experts, equipment and materials that could be made available to assist another State. This obligation is fulfilled through registration to RANET. Currently nearly 30 Member States have registered.

In the case of a nuclear or radiological emergency, a State may request assistance by or through the IAEA, who then facilitate assistance utilizing the NAC registered in RANET.

## **UNIFIED SYSTEM FOR INFORMATION EXCHANGE IN INCIDENTS AND EMERGENCIES (USIE)**

The IEC maintains a 24 hour on-call system for rapid initial assessment of events. In the event of a radiation emergency, countries will need quick, authoritative and verified information about the situation and its potential consequences.

USIE is the IAEA's emergency communication website. It enables countries to exchange urgent notifications and follow-up information during an emergency, as well as requests for information or for international assistance.

Over 1000 users from more than 150 member states are currently registered to USIE.

## **NUCLEAR EVENTS WEB-BASED SYSTEM (NEWS)**

NEWS is used as a communication channel, accessible to the public, for reporting events using the International Nuclear and Radiological Event Scale (INES). Information to the NEWS is reported by participating INES National Officers worldwide. Over 90 designated INES National Officers of more than 70 countries are authorized to post reports and updates to NEWS.

## **INTERNATIONAL NUCLEAR AND RADIOLOGICAL EVENT SCALE (INES)**

INES is a tool for communicating the safety significance of events associated with sources of ionizing radiation to the public. It covers activities at nuclear facilities, transport of radioactive material and a wide spectrum of practices in industry and medicine. The primary purpose of INES is to facilitate communication and understanding between the technical community, the media and the public on the safety significance of events.

## New Tools: EPR Information Management System (EPRIMS)

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EPRIMS can be used by each Member State to conduct its own EPR self-assessment, reflecting differences in EPR arrangements for nuclear power plant and other activities. The system enables each Member State to decide with which other Member State(s) it would like to share its information. EPRIMS is capable of on-line analysis of the data to provide an overview by country, sub-region, region or inter-regionally.

In addition to knowledge sharing of EPR capabilities, EPRIMS will also contain a knowledge management database of static nuclear reactor technical information (RTI). EPRIMS is also linked to the IAEA Power Reactor Information System (PRIS) database.



## Safety Standards and Technical Tools

The IAEA develops safety standards, guidelines and tools covering a broad range of EPR issues. The IAEA also develops technical documents and training materials for the applications of the IAEA Safety Standards. Member States are encouraged to implement and apply IAEA Safety Standards in the area of EPR.

The IAEA has also developed standardized training material associated with the practical manuals.

The EPR series is a specific series of the IAEA publications on emergency preparedness and response. The EPR-series publications can be found, in different UN languages, in an electronic format on the web or in hard copies upon request to the IAEA.

## 10 years of IEC

In 1959, shortly after the IAEA was created, EPR capabilities were established and were gradually enhanced after the accident at the Chernobyl Nuclear Power Plant in 1986.

In 2005, the IAEA announced the establishment of the IEC. The decision to create an integrated Centre within the IAEA became more pressing with the anticipated increase in the use of nuclear applications as well as heightened concern over the malicious use of nuclear or radioactive materials.

2015 marks the 10th anniversary since the establishment of the IEC.

## IEC Important Dates

**1986** - Chernobyl Accident and establishment of Inter-Agency Committee on Response to Nuclear Accidents (IACRNA)

**1990** - The International Nuclear Event Scale (INES) developed in cooperation with OECD

**1999** - Emergency Preparedness Review (EPREV) offered

**2000** - Emergency Response Centre (ERC) established as 24 hour warning point and IAEA's operational focal point

**2004** - International Action Plan for Strengthening the International Preparedness and Response System for

Nuclear and Radiological Emergencies approved by the Board of Governors

**2005** - Incident and Emergency Centre (IEC) established

**2007** - Response Plan for Incidents and Emergencies published

**2011** - Accident at Fukushima Daiichi Nuclear Power Plant

**2012** - Fukushima Monitoring Database launched and Operations Manual for Incident and Emergency Communication published

**2013** - Designation of the IAEA RANET Capacity Building Centre (CBC) in Fukushima Prefecture

## TOP 10

# 10 Things You Need to Know About the IEC



1

More than 20 EPR series publications



2

Over 270 contact points in Member States worldwide



3

18 International Organisations are members of the Inter-Agency Committee on Radiological and Nuclear Emergencies



4

Nearly 30 countries registered in the Response and Assistance Network



5

Responding to 40 events per year on average



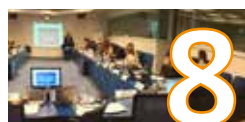
6

Over 1000 users registered to the Unified System for Information Exchange in Incidents and Emergencies



7

54 days activated in full response mode during the Fukushima Daiichi accident



8

Some 40 Emergency Preparedness Review-Eprev-Missions conducted worldwide



9

Over 1200 professionals in Member States trained on average per year



10

24/7 coverage for nuclear and radiological emergencies

## How to obtain key IAEA emergency preparedness and response publications

The IAEA is a leading publisher in the nuclear field. Its scientific and technical publications include international safety standards, technical guides, conference proceedings and scientific reports. Publications of a more general interest include the IAEA Bulletin, factsheets and topical booklets.

For information obtaining this and other publications, see:

<http://www-pub.iaea.org/books/howtoorder.aspx>



# IEEC

## Incident and Emergency Centre

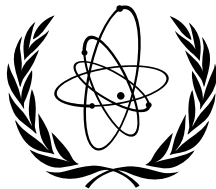


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